

Jacob A Kosberg

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Education

U.C. San Diego (transferred from Pasadena City College)

Fall 2017 - Spring 2019

Major: Mathematics B.S.

- Completed classes: Data Structures & Algorithms, Algebra, Analysis, Circuits & Electronics, E&M, Functional Analysis, Numerical Analysis, Differential Geometry, Topology, Statistics.
- Conducted physics experiments; designed circuits and wrote code in C++ and Python to analyze experimental data. Led group projects for data analysis assessments. Tutored CS majors.

Experience

NASA-Jet Propulsion Laboratory

June 2019 - present

Software Engineer - Scientific Applications

- Created responsive and modular web UIs for spectroscopy, experiment ops, and robot ops.
- Analyzed spectra of Galilean satellites: e.g. transformations, convolutions, and reprojections.
- System & software architecture for a novel buoyant rover (BRUIE) which communicates under sea and lake ice with acoustic, cell, and satellite links.
- Designed network topologies that handle transmission over unreliable links. Developed actuator-sensor control loops for autonomous under-ice roving.

March 2017 - June 2019

Research Assistant / Software Engineering Intern

- Invented techniques for measuring ice morphology emergence using machine vision.
- Trained colleagues on cryogenic vacuum system operation & maintenance.
- Wrote multi-threaded graphical user interfaces for diverse camera and LIDAR hardware.

Criteo

January 2015 - December 2016

Development Analyst Consultant

- Developed data analysis tools: e.g. taxonomy version control and pipe-filter APIs.
- Architected and unit-tested abstract Java that used Hadoop for distributed computation.
- Studied Agile software engineering management, software architecture presentation skills, and code documentation at a developer summit in Paris, France.

DataPop (ad-tech startup acquired by Criteo)

May 2013 - January 2015

Data Operations/Technical Services, A/V Technician

- Built analysis pipelines that helped inform company strategy which led to DataPop's acquisition.
- Developed, tested, and deployed to production environments validation software that was instrumental for daily operations and used by customer-facing team members.
- Helped maintain tools for team management, version control, and software deployment (such as Git, Jira, and Jenkins). Implemented a production deployment pipeline for Python tools.
- Crawled data and ran clustering on tens of gigabytes. Operated ML deployment architecture.

Technical Skills

- Signal Processing, State Machines & Computability, Control Theory, Information Theory, ML
- Formal Languages: Python, C++, C, JavaScript, Java, R, Perl, Bash, SQL, Scala, Go, Verilog, LaTeX
- Technologies: git, scikit ecosystems (numpy, pandas, jupyter, etc), nltk, SymPy, pymesh, flask, Swagger, OpenCV, LabView, Hadoop, node, react, vue. Blender, ArcGIS, ENVI, and GDAL.
- **EE**: analog and digital circuit design, board design with KiCad, FPGA & microcontroller software
- **ME**: Solidworks (certified assoc.), OnShape, 3D printing, chassis design, fab, mechanical analysis